

5080 M-drugs

Amino acids are the basic elements of living cells. There are 20 different types of amino acids which are denoted by capital letters: A, C, D, E, F, G, H, I, K, L, M, N, P, Q, R, S, T, V, W, and Y. A protein is a chain of amino acids.

Viruses have been well known for their causes for many diseases. A virus is characterised by its protein. Recently, they have invented M-drug (molecular drug) — a new type of medicine to kill virus, which has shown its surprising efficiency. An M-drug is also characterised by its protein.

An M-drug characterised by a protein D , can destroy k amino acids in the protein V of a virus if there exists two number sequences $(x_1 < x_2 < \dots < x_k)$ and $(y_1 < y_2 < \dots < y_k)$ satisfying that $D(x_i) = V(y_i)$ with $i = 1 \dots k$. The efficiency of an M-drug on a virus is defined as the maximum number of amino acids in the protein of the virus that the M-drug can destroy.

Given the protein of a virus and the proteins of n different M-drugs, your task is to write a program to determine the maximum value of the efficiencies of those M-drugs on the virus.

Input

The input file consists of several data sets. The first line of the input file contains the number of data sets which is a positive integer and is not bigger than 20. The following lines describe the data sets.

For each data set, the first line contains an integer n ($1 \leq n \leq 200$) representing the number of M-drugs. The next line consists of a string with its length not exceeding 10000 representing protein of the virus. The i -th line of the following n lines contains a string with a length not exceeding 500 representing the protein of the i -th M-drug.

Output

For each data set, write in one line the maximum value of the efficiencies of those M-drugs on the virus.

Sample Input

```
1
5
ENRPPNVPES
TEV
LNRC
HKVR
FWW
PWP
```

Sample Output

```
2
```